Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
Southeast Regional Office • 20 Riverside Drive, Lakeville MA 02347 • 508-946-2700

April 24, 2015

Jihad Rizkallah
S&S Freetown, LLC
1385 Hancock Street
Quincy, Massachusetts 02169

RE: **Freetown**
Transmittal No.: X265060
Application No.: SE-15-007
Class: SM79-7
FMF No.: 392669
AIR QUALITY PLAN APPROVAL

Dear Mr. Rizkallah:

The Massachusetts Department of Environmental Protection ("MassDEP"), Bureau of Air and Waste (BAW), has reviewed your Limited Plan Application ("Application") listed above. The Application requested approval to install and operate a new larger capacity enclosed flare (12.2 MMBtu/hr), rather than the previously approved enclosed flare (10.8 MMBtu/hr), in addition to seeking approval of minor facility operational and administrative changes. The new 12.2 MMBtu/hr flare will be located at the S&S Freetown, LLC Product Recovery Operation and Anaerobic Digestion biogas production-to-energy facility ("Facility") to be located at the existing Stop & Shop Supermarket Company, LLC ("Stop & Shop") Warehouse and Distribution Center, 136 South Main Street, Freetown, Massachusetts.

This Application was submitted in accordance with 310 CMR 7.02 Plan Approval and Emission Limitations as contained in 310 CMR 7.00 "Air Pollution Control," regulations adopted by MassDEP pursuant to the authority granted by Massachusetts General Laws, Chapter 111, Section 142 A-J, Chapter 21C, Section 4 and 6, and Chapter 21E, Section 6. MassDEP's review of your Application has been limited to air pollution control regulation compliance and does not relieve you of the obligation to comply with any other regulatory requirements.

MassDEP has determined that the Application is administratively and technically complete and that the Application is in conformance with the Air Pollution Control regulations and current air pollution control engineering practice, and hereby grants this **Plan Approval** for said Application, as submitted, subject to the conditions listed below.

Please review the entire Plan Approval, as it stipulates the conditions with which the Facility owner/operator ("Permittee") must comply in order for the Facility to be operated in compliance with this Plan Approval.

1. DESCRIPTION OF FACILITY AND APPLICATION

S&S Freetown, LLC ("S&S Freetown") has proposed the construction and operation of a Product Recovery Operation ("PRO"), an anaerobic digestion ("AD") biogas production-to-energy facility. The approved AD operation will be housed in an approximately 12,000-square foot addition to the existing Stop & Shop Warehouse and Distribution Center ("Distribution Center") Salvage Building.

The Permittee will utilize the existing Stop & Shop food distribution network to return unsold food product (e.g. produce, bakery, deli items and products past expiration dates) from Stop & Shop grocery stores, including rejected food product from the Distribution Center (i.e. Stop & Shop "Source Sites") for use in the AD operation. Some indigestible packaging material may be included in the feedstock. All feedstock materials will be sourced exclusively from the Source Sites. The feedstock will be either (1) collected in containers at each Stop & Shop grocery store Source Site, and delivered to the Facility in trucks returning to the warehouse from grocery delivery trips or (2) transferred to the AD operation from the adjacent Distribution Center buildings. Once the feedstock arrives at the shipping dock, it will be shuttled via pallet jack to the AD biogas facility staging area. The incoming product will be processed in a fully enclosed pulping system where indigestible material will be removed and water added to create a slurry. The remaining organics in the slurry will then be converted into biogas in a sealed tank. The biogas will fuel a combined heat and power ("CHP") engine/generator set to produce heat and electricity and/or be combusted in an enclosed flare.

The biogas produced by the AD operation will be compressed to 5 pounds per square inch (psi) and condensation removed before entering the engine/generator set. Hydrogen Sulfide (H_2S) present in the biogas will be controlled by adding iron chloride to the anaerobic digester to convert H_2S to iron sulfide, which will remain as a precipitate in the digester and be removed as part of the solids cake. The addition of iron chloride will control the H_2S in biogas to 200 ppmv or less prior to burning in the engine or enclosed flare.

The biogas will fuel a GE Jenbacher J 416 GS-B82 internal combustion ("IC") engine with electrical generator to produce 1.137 megawatts (MW) of electricity that will provide a portion of the Distribution Center power needs. Energy produced by the engine/generator will be used for Stop & Shop on-site electrical and heating purposes only. Excess biogas will be burned in an enclosed flare to relieve pressure as needed. The excess jacket heat from the CHP engine/generator set will be used to warm the make-up water used in the blending process described above. The Jenbacher IC "lean burn" engine will also be capable of firing natural gas, which will only be fired during initial commissioning, startup and/or on a limited basis when biogas is not available, or of sufficient quantity to generate thermal energy required for the processing of feedstock, or of sufficient quantity to maintain a minimum 50% fuel input capacity to the IC engine to satisfy equipment control criteria for turndown.

The Jenbacher engine (1,573 brake horsepower) has a maximum energy input rating of 11,550,000 B.t.u. per hour ("Btu/hr") and is capable of firing approximately 320 standard cubic feet per minute ("SCFM") of biogas having an approximate fuel heat content of 600 Btu/cubic foot ("Btu/ft^3") or 189 SCFM of natural gas having an approximate fuel heat content of 1,020 Btu/ft^3. The Jenbacher engine will be equipped with a Jenbacher Model JMC 416B82 exhaust silencer. The ABUTEC Model HTF 3.5 enclosed flare has a maximum energy input rating of 12,200,000 Btu/hr and is capable of firing approximately 339 SCFM of biogas having an approximate fuel heat content of 600 Btu/ft^3.

To mitigate sound emissions, the Facility will utilize the following noise suppression measures: the Jenbacher engine will be equipped with a critical-grade exhaust silencer and housed in an acoustically-treated enclosure (sound adsorbent surfaces comprised of rock wool with perforated plating) with air intake noise attenuator and the enclosed flare will be constructed with an acoustically insulated stack and fully enclosed burner system.

Proposed permitted emissions from the proposed construction are less than the applicable thresholds for major New Source Review including Prevention of Significant Deterioration (PSD) review under 40 CFR Part 51, section 52.21, and Emission Offsets and Nonattainment Review under 310 CMR 7.00 Appendix A.

The existing Distribution Center contains forty (40) small plan exempt natural gas fired (only) combustion units comprised of air heaters, water heaters and infrared heaters (less than 20 MMBtu/hr combined energy input). As discussed in the Application, the approved S&S Freetown AD biogas equipment and existing exempt combustion units at the Stop & Shop Warehouse and Distribution Center will result in facility-wide potential pollutant emission totals below the applicable limits specified in the MassDEP Title V Operating Permit Program, "Operating Permit and Compliance Program," 310 CMR 7.00 Appendix C.

The Permittee is also subject to the terms and conditions contained in Permit for Recycling, Composting or Conversion Operation (BWPSW46, transmittal X258191) issued in accordance with MassDEP Solid Waste Regulations 310 CMR 16.00 "Site Assignment Regulations for Solid Waste Facilities."

Plan Approval SE-15-007 dated April 24, 2015 supersedes Plan Approval SE-13-038 dated January 8, 2014 in its entirety, thereby making Plan Approval SE-13-038 null and void.

2. EMISSION UNIT (EU) IDENTIFICATION

Each Emission Unit (EU) identified in Table 1 is subject to and regulated by this Plan Approval:

Table 1

EU#	Description	Design Capacity	Pollution Control Device (PCD)
1	Anaerobic Digestion Biogas System: GE Jenbacher J 416 GS-B82 Engine	11,550,000 Btu/hr (max engine heat input) 1,137 kW (max electrical generator output)	N/A
2	Anaerobic Digestion Biogas System: ABUTEC Model HTF 3.5 enclosed flare	12,200,000 Btu/hr (max flare heat input)	N/A

Table 1 Key:
EU = emission unit; EU# = emission unit number; Btu/hr = British Thermal Units per hour; Max = maximum
PCD = pollution control device; SCFM = standard cubic feet per minute; kW = kilowatt; N/A = not applicable

3. APPLICABLE REQUIREMENTS

A. OPERATIONAL, PRODUCTION and EMISSION LIMITS

The Permittee is subject to, and shall not exceed the Operational, Production, and Emission Limits as contained in Tables 2a and 2b below:

Table 2a

EU#	Operational/ Production Limit	Air Contaminant	Emission Limit				
			lb/MMBtu(1)	g/bhp-hr(1)	lb/MW-hr(1)	lb/hr(2)	ton/yr(2)(3)
1	11,550,000 Btu/hr (max engine heat input)	NO_x	0.18	0.6	1.80	2.079	9.11
	Primary fuel: Biogas (only)(4) Supplemental fuel: Natural gas(4)	CO	0.90	3.0	9.10	10.395	45.5
		VOC	0.13	0.43	1.30	1.502	6.58
		$PM/PM_{10}/PM_{2.5}$	0.003	0.01	0.03	0.035	0.152
		$HAP_{(aggregate\ total)}$	0.13	0.43	1.30	1.502	6.58
		SO_2	0.05	0.16	0.50	0.578	2.53
		H_2S	≤200 ppmvd in biogas				
		$CO_{2(from\ oxidized\ CH4)}$	112.9	376.4	1,150	1,304	5,711
		Opacity	<5%, EXCEPT 5 TO <10% FOR ≤2 MINUTES DURING ANY ONE HOUR				

Table 2a			
EU#	**Operational/ Production Limit**	**Air Contaminant**	**Emission Limit**
		Smoke	310 CMR 7.06(1)(a)

Table 2a						
EU#	**Operational/ Production Limit**	**Air Contaminant**	**Emission Limit**			
2	12,200,000 Btu/hr (max flare heat input)		lb/MMBtu[6]	lb/hr[6]	ton/mo[6][7]	ton/yr[3][6]
		NO_x	0.068	0.830	0.309	3.22
	Exclusive fuel: Biogas	CO	0.370	4.514	1.679	17.5
	Operational Limit ≤9.0768 x 10^9 Btu/month from biogas being flared in EU2	VOC	0.14	1.708	0.635	6.62
		$PM/PM_{10}/PM_{2.5}$	0.0095	0.116	0.043	0.449
	Operational Limit ≤9.4611 x 10^{10} Btu/year from biogas being flared in EU2	$HAP_{(aggregate\ total)}$	0.14	1.708	0.635	6.62
		SO_2	0.05	0.610	0.227	2.37
		H_2S	≤200 ppmvd in biogas			
	Enclosed flare[5]: • 99.9 % C.E. • 1,400°F - 1800°F • 0.3 seconds residence time (min)	$CO_{2(from\ oxidized\ CH4)}$	121	1,476	549	5,724
		Opacity	<5%, EXCEPT 5 TO <10% FOR ≤2 MINUTES DURING ANY ONE HOUR			
		Smoke	310 CMR 7.06(1)(a)			

Table 2b			
EU#	**Operational/Production Limit**	**Air Contaminant**	**Emission Limit** ton/yr[8]
1 and 2 (combined)[8]	EU1: 11,550,000 Btu/hr (max engine heat input) Primary fuel: Biogas and/or Supplemental fuel: Natural gas[4]	NO_x	9.11
		CO	45.5
		VOC	6.62
		$PM/PM_{10}/PM_{2.5}$	0.449
		$HAP_{(aggregate\ total)}$	6.62

Table 2b			
EU#	**Operational/Production Limit**	**Air Contaminant**	**Emission Limit** ton/yr[(8)]
	and	SO_2	2.53
	EU2: 12,200,000 Btu/hr (max flare heat input) Primary fuel: Biogas Supplemental fuel: N/A	$CO_{2(\text{from oxidized CH4})}$ [(3)]	5,724

Tables 2a and Table 2b Key:
EU = emission unit
EU# = emission unit number
N/A = not applicable
Btu = British Thermal Unit
Btu/hr = British Thermal Unit per hour
SCFM = standard cubic feet per minute
g/bhp-hr = gram per brake horsepower hour
lb/MW-hr = pounds per megawatt hour
lb/hr = pounds per hour based on a one hour average
ppmvd = parts per million by volume, dry
Ton/mo = tons per calendar month
Month or mo = a calendar month
$\leq$ = equal to or less than
< = less than
Max = maximum
i.e. = that is
Min = minimum
% = percent
°F = degrees Fahrenheit
C.E. = control efficiency = (Capture)(Destruction)
NO_x = oxides of nitrogen
CH4 = methane
CO_2 = carbon dioxide
SO_2 = sulfur dioxide
H_2S = hydrogen sulfide
CO = carbon monoxide
VOC = volatile organic compounds
HAP = hazardous air pollutant, as defined by 1990 CAA Amendments
$PM/PM_{10}/PM_{2.5}$ = particulate matter, including particulate matter $\leq$ 10 microns and particulate matter $\leq$ 2.5 microns in size
lb/MMBtu = pounds per million Btu based on a one-hour average
Year or yr = a consecutive 12-month period (i.e. a "rolling 12-month period")
Ton/yr = tons per consecutive 12-month period (i.e. a "tons per rolling 12-month period")

Tables 2a and Table 2b Footnotes:
(1) EU1 lb/MMBtu, g/bhp-hr and lb/MW-hr emission limits shall only apply to engine/generator loads of 50% or greater
(2) EU1 lb/hr and ton/yr emission limits shall apply to all engine/generator loads
(3) EU1 and EU2 ton/yr emission limits based on maximum heat rate input for EU1 (11,550,000 Btu/hr firing biogas and/or natural gas) at 8,760 hours per year (unrestricted operation) and EU2 (12,200,000 Btu/hr firing biogas) and approved EU2 operational limit of $\leq 9.4611 \times 10^{10}$ Btu/year from biogas being flared and maximum allowable emission limits (lb/MMBtu), as applicable

(4) Engine (EU1): Biogas (primary fuel) shall be burned when available. Natural gas shall be burned only during initial commissioning, start up and/or limited time basis when biogas is not available or of sufficient quantity to generate thermal energy required for the processing of feedstock, or of sufficient quantity to maintain a minimum 50% fuel input capacity to the IC engine to satisfy equipment control criteria for turndown

(5) Flare (EU2): 99.9 % overall minimum control efficiency (C.E.) = (Capture)(Destruction)
0.3 seconds minimum residence time of gases in combustion chamber
1,400 °F minimum combustion temperature to be maintained under all operating conditions, **except** during flare start-up (not to exceed 15 minutes) and low flare biogas flow (70 SCFM or less)

(6) EU2 lb/MMBtu, lb/hr, tons/mo and ton/yr emission limits shall apply to all operating conditions

(7) EU2 tons/month emissions reflect the approved operational limit of $\leq 9.0768 \times 10^9$ Btu/mo from biogas being flared

(8) EU1 and EU2 (combined) ton/yr emission limits reflect worst-case pollutant totals for engine (EU1) or flare (EU2) operating at maximum heat rate input (EU1: 11,550,000 Btu/hr firing biogas and/or natural gas or EU2: 12,200,000 Btu/hr firing biogas) at maximum allowable emission limits (lb/MMBtu), as applicable, at 8,760 hours per year for EU1 (unrestricted operation) and approved EU2 operational limit of $\leq 9.4611 \times 10^{10}$ Btu/year from biogas being flared

B. COMPLIANCE DEMONSTRATION

The Permittee is subject to, and shall comply with, the monitoring, testing, record keeping and reporting requirements as contained in Tables 3, 4, and 5 below:

Table 3

EU#	Monitoring and Testing Requirements
1	1. The Permittee shall conduct emissions testing for NO_x, CO, VOC, and SO_2 (lb/MMBtu, lb/MW-hr & g/bhp-hr) on EU1 within one hundred eighty (180) days of the commencement of continuous operation of said unit. All compliance testing shall be conducted in accordance with the test methods and procedures set forth in 40 CFR 60, Appendix A. All compliance testing shall be witnessed by MassDEP personnel at a mutually agreeable date and time. The Permittee shall submit a stack emission pretest protocol to MassDEP for review and approval at least thirty (30) days prior to the anticipated date of the required compliance emission testing. The Permittee shall submit a final stack emission test results report within forty-five (45) days of completion of the compliance stack testing. The Permittee shall submit the stack emission pretest protocol and final stack emission test results report to: MassDEP, SERO, BAW (attn: Thomas Cushing, Permit Chief)
	2. A NOx/CO optimization/minimization diagnostic emission test program shall be conducted prior to compliance demonstration testing.
	3. For compliance testing purposes, EU1 shall be constructed so as to accommodate the emissions testing requirements as stipulated in 40 CFR Part 60, Appendix A. The two (2) inlet and two (2) outlet sampling ports should ideally be located at two (2) duct diameters upstream and eight (8) duct diameters downstream of any flow disturbance. The corresponding sampling ports should be ninety (90) degrees apart from each other.
	4. The Permittee shall monitor the daily, monthly and consecutive twelve month period biogas and natural gas consumption for EU1 to document compliance with the operational and emission limitations contained in Tables 2a and 2b.
2	5. Pilot flame on/off status shall be continuously monitored.
	6. The Permittee shall monitor the daily, monthly and consecutive twelve month period biogas consumption for EU2 to document compliance with the operational and emission limitations contained in Tables 2a and 2b.

Table 3	
EU#	**Monitoring and Testing Requirements**
Facility-wide	7. The Permittee shall monitor weekly the hydrogen sulfide concentration (in ppm by volume) exiting the Digester Tank before the biogas is combusted in either EU1 or EU2 to document compliance with the emission limitations contained in Tables 2a and 2b. H_2S monitoring may be conducted using colorimetric detection tubes.
	8. The Permittee shall continuously monitor the biogas pressure in the Digester tank to ensure it is maintained at a negative pressure at all times.
	9. The Permittee shall continuously monitor the biogas production rate of the anaerobic digestion system.
	10. The Facility shall be constructed to accommodate the emission testing requirements contained in 40 CFR Part 60 Appendix A.
	11. The Permittee shall conduct emission testing in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13, if and when MassDEP requires it.

Table 3 Key:
EU = emission unit
EU# = emission unit number
ppm = parts per million
& = and
NO_x = oxides of nitrogen
CO = carbon monoxide
SO_2 = sulfur dioxide
H_2S = hydrogen sulfide
VOC = volatile organic compounds
g/bhp-hr = gram per brake horsepower hour
lb/MW-hr = pounds per megawatt hour
lb/MMBtu = pounds per million Btu based on a one-hour average
CFR = Code of Federal Regulations
CMR = Code of Massachusetts Regulations
USEPA = United States Environmental Protection Agency
MassDEP = Massachusetts Department of Environmental Protection
SERO = MassDEP Southeast Regional Office, 20 Riverside Drive, Lakeville, MA 02347
BAW = MassDEP SERO Bureau of Air and Waste

Table 4	
EU#	**Record Keeping Requirements**
1	1. The Permittee shall maintain records on-site of daily, monthly and consecutive twelve month period biogas and natural gas consumption for EU1 to document compliance with the operational and emission limitations contained in Tables 2a and 2b.
	2. A copy of the NO_x/CO optimization/minimization program report shall be maintained on-site.

Table 4

EU#	Record Keeping Requirements
2	3. The Permittee shall maintain records on-site of daily, monthly and consecutive twelve month period biogas consumption for EU2 to document compliance with the operational and emission limitations contained in Tables 2a and 2b.
	4. Pilot flame on/off status shall be continuously recorded.
Facility-wide	5. The Permittee shall continuously record the biogas pressure in the Digester tank to document it is maintained at negative pressure at all times.
	6. The Permittee shall maintain adequate records on-site to demonstrate compliance with all operational, production, and emission limits contained in Tables 2a and 2b above. Records shall also include the actual emissions of air contaminant(s) emitted for each calendar month and for each consecutive twelve month period (current month plus prior eleven months). These records shall be compiled no later than the 15th day following each month. An electronic version of the MassDEP approved record keeping form, in Microsoft Excel format, can be downloaded at http://www.mass.gov/dep/air/approvals/aqforms.htm#report
	7. The Permittee shall maintain records of monitoring and testing as required by Table 3.
	8. The Permittee shall maintain on site and accessible at or near the subject equipment, at all times, a copy of this Plan Approval letter and the SOMP for all air-emissions-related equipment.
Facility-wide	9. The Permittee shall quantify all periods of excess emissions, even if attributable to an emergency/malfunction, startup/shutdown or equipment cleaning in the determination of annual emissions and compliance with the emission limits contained in Tables 2a and 2b.
	10. The Permittee shall keep monthly records on-site of all operating and maintenance activities for the subject EUs and any ancillary equipment, including the hours of operation (including start-ups and shutdowns) and monthly records of maintenance activities.
	11. The Permittee shall maintain records on-site of the actual monthly and consecutive twelve month period emission rates of NO_x, CO, VOC, PM/PM10/PM2.5, SO_2, H_2S, CO_2 and HAP for each EU and combined to document compliance with the emission limitations contained in Tables 2a and 2b.
	12. The Permittee shall maintain weekly records on-site of the H_2S concentration (in ppm by volume) exiting the Digester Tank before the biogas is combusted in either EU1 or EU2 to document compliance with the emission limitations contained in Tables 2a and 2b.
	13. The Permittee shall maintain a record of routine maintenance activities performed on the approved EU(s), PCD(s) and monitoring equipment. The records shall include, at a minimum, the type or a description of the maintenance performed and the date and time the work was completed.
	14. The Permittee shall maintain a record of all malfunctions affecting air contaminant emission rates on the approved EU(s) and monitoring equipment. At a minimum, the records shall include: date and time the malfunction occurred; description of the malfunction; corrective actions taken; the date and time corrective actions were initiated and completed; and the date and time emission rates and monitoring equipment returned to compliant operation.
	15. The Permittee shall maintain records required by this Plan Approval on-site for a minimum of five (5) years.

Table 4	
EU#	**Record Keeping Requirements**
	16. The Permittee shall make records required by this Plan Approval available to MassDEP and USEPA personnel upon request.

Table 4 Key:
EU = emission unit
EU# = emission unit number
PCD = Pollution Control Device
i.e. = that is
ppm = parts per million
SOMP = Standard Operating and Maintenance Procedure
NO_x = oxides of nitrogen
CO = carbon monoxide
VOC = volatile organic compounds
SO_2 = sulfur dioxide
H_2S = hydrogen sulfide
CO_2 = carbon dioxide
$PM/PM_{10}/PM_{2.5}$ = particulate matter, including particulate matter $\leq$ 10 microns and particulate matter $\leq$ 2.5 microns in size
HAP = hazardous air pollutant, as defined by 1990 CAA Amendments
Ton/yr = tons per consecutive 12-month period (i.e. a "tons per rolling 12-month period")
USEPA = United States Environmental Protection Agency
MassDEP = Massachusetts Department of Environmental Protection

Table 5	
EU#	**Reporting Requirements**
Facility-wide	1. The Permittee shall notify MassDEP, SERO, BAW (attn: Thomas Cushing, Permit Chief), in writing, within fourteen (14) days of commencement of operation of the approved EUs.
	2. The Permittee shall submit to MassDEP all information required by this Plan Approval over the signature of a "Responsible Official" as defined in 310 CMR 7.00 and shall include the Certification statement as provided in 310 CMR 7.01(2)(c).
	3. The Permittee shall notify the MassDEP, SERO, BAW, Compliance & Enforcement Section Chief Gregg Hunt by telephone: 508-946-2817, email: sero.air@state.ma.us or fax: 508-947-6557, as soon as possible, but no later than one (1) business day after discovery of an exceedance(s) of Tables 2a and 2b requirements. A written report shall be submitted to MassDEP, SERO, BAW, Compliance & Enforcement Section Chief Gregg Hunt within three (3) business days thereafter and shall include: identification of exceedance(s), duration of exceedance(s), reason for the exceedance(s), corrective actions taken, and action plan to prevent future exceedance(s).
	4. The Permittee shall provide a copy to MassDEP of any record required to be maintained by this Plan Approval within thirty (30) days from MassDEP's request.
	5. The Permittee shall submit a stack emission pretest protocol for MassDEP review and approval. The stack emission pretest protocol shall be submitted at least thirty (30) days prior to the required compliance emission testing defined in Table 3 "Monitoring and Testing Requirements". The Permittee shall submit the stack emission pretest protocol to: MassDEP, SERO, BAW (attn: Thomas Cushing, Permit Chief).

Table 5	
EU#	**Reporting Requirements**
	6. The Permittee shall submit a final stack emission test results report within forty-five (45) days after completion of the required compliance emission testing defined in Table 3 Monitoring and Testing Requirements. The Permittee shall submit the final stack emission test results report to: MassDEP, SERO, BAW (attn: Thomas Cushing, Permit Chief).
	7. The Permittee shall submit the Final Standard Operating and Maintenance Procedures (SOMP) for the approved EUs to MassDEP, SERO, BAW (attn: Thomas Cushing, Permit Chief) within forty-five (45) days of completion of their required initial compliance emission testing. Any subsequent changes to the SOMP shall be submitted to MassDEP, SERO, BAW (attn: Thomas Cushing, Permit Chief), within fifteen (15) days of said revision(s).
	8. All notifications and reporting required by this PLAN APPROVAL, unless otherwise specified, shall be made to the attention of: Massachusetts Department of Environmental Protection Southeast Regional Office Bureau of Air and Waste 20 Riverside Drive Lakeville, Massachusetts 02347 Attn: Thomas Cushing, Permit Chief Phone: (508) 946-2824 Fax: (508) 947-6557
	9. The Permittee shall file a Source Registration report in accordance with 310 CMR 7.12. U Source Registration (1) Applicability (a)7.

Table 5 Key:
EU = emission unit
EU# = emission unit number
CMR = Code of Massachusetts Regulations
MassDEP = Massachusetts Department of Environmental Protection
SERO = MassDEP Southeast Regional Office, 20 Riverside Drive, Lakeville, MA 02347
BAW = MassDEP SERO Bureau of Air and Waste

4. SPECIAL TERMS AND CONDITIONS

The Permittee is subject to, and shall comply with, the following special terms and conditions:

A. The Permittee shall comply with the Special Terms and Conditions as contained in Table 6 below:

Table 6	
EU#	**Special Terms and Conditions**

Table 6

EU#	Special Terms and Conditions
1	1. The Permittee has indicated that the GE Jenbacher Type J416 GS-B82 engine (EU1) is subject to 40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines and 40 CFR 63 Subpart ZZZZ – National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines . Since MassDEP has not accepted delegation for Subparts JJJJ or ZZZZ, you are advised to consult with the United States Environmental Protection Agency (USEPA) for additional information regarding applicable requirements that may apply to your facility. EPA's address is: US EPA Region 1, 5 Post Office Square – Suite 100, Boston, MA 02109-3912, attn: Susan Lancey.
	2. Engine (EU1): Biogas (primary fuel) shall be burned when available. Natural gas shall be burned as a supplemental fuel only during initial commissioning, start up and/or limited supplemental basis when biogas is not available, or of sufficient quantity to generate thermal energy required for the processing of feedstock, or of sufficient quantity to maintain a minimum fifty (50) percent fuel input capacity to the IC engine to satisfy equipment control criteria for turndown.
1 and 2	3. In the event that the engine (EU1) is not operational, all biogas from the AD system shall be routed to the flare (EU2).
Facility-wide	4. Sound impacts shall not exceed ten (10) dB(A) above background and shall not cause a puretone condition as defined in the Division of Air Quality Control Noise Policy No. 90-001.
	5. The Permittee shall submit a digester feedstock recordkeeping plan to MassDEP for approval at least thirty (30) days prior to startup of the digester. This recordkeeping plan may be incorporated into the daily materials management records tracking plan required by provision V.B.9.b. of the Permit for Recycling, Composting or Conversion Operation, application BWPSW46, Transmittal No. X258191.
Facility-wide	6. The Permittee shall develop a testing plan to characterize the quality, quantity, and composition of the biogas. The biogas testing plan should include quantifying the heat value of the biogas, identifying and quantifying the major constituents of the biogas, including but not limited to H_2S and siloxanes. The biogas testing plan should include an evaluation of how biogas production rate and characterization varies based on and correlated to quantity and characterization of the feedstock including any chemical additives, e.g. antifoaming agents. The biogas testing plan shall be submitted to MassDEP, SERO, BAW (attn: Thomas Cushing, Permit Chief) for review and approval at least thirty (30) days prior to the startup of the emission units approved herein.

Table 6	
EU#	**Special Terms and Conditions**
	7. The Permittee shall submit a standard operations and maintenance plan for the iron chloride H_2S treatment system to MassDEP, SERO, BAW (attn: Thomas Cushing, Permit Chief) within sixty (60) days of startup of the emission units approved herein. This plan shall be implemented and followed immediately upon startup of the approved emission units and, at a minimum, include the following information: • a description of the system, including materials of construction and key operating parameter value(s) or range(s); • a description of how the system will be operated and maintained, including a schedule for routine maintenance and material replacement and equipment specifications; • a description of how system key operating parameters will be monitored and corrective actions performed if any key operating parameter(s) fall outside its (their) expected value(s) or range(s); • a description of any periodic sampling or testing performed on the system and emissions exiting it for odor-causing compounds; and • a description of how any system malfunctions will be reported to the MassDEP.
	8. The Permittee shall design and construct the emission units to readily accommodate the future installation of an odor control system (i.e. chemical scrubber or equivalent), if required.
	9. Energy produced by the S&S Freetown engine/generator (EU1) shall be used for on-site electric power and heating use only. The term "on-site" used herein means: "S&S Freetown, LLC and/or Stop & Shop Supermarket Company, LLC Warehouse and Distribution Center located at 136 South Main Street, Freetown, Massachusetts".
	10. Plan Approval SE-15-007 dated April 24, 2015 supersedes Plan Approval SE-13-038 dated January 8, 2014, in its entirety, thereby making Plan Approval SE-13-038 null and void. Past approved Application SE-13-038, including documents/information contained therein remain pertinent, valid and in effect unless specifically altered herein by the issuance of Plan Approval SE-15-007.

Table 6 Key:
EU = emission unit
EU# = emission unit number
i.e. = that is
e.g. = for example
USEPA = United States Environmental Protection Agency
CFR = Code of Federal Regulations
H_2S = hydrogen sulfide
AD = anaerobic digestion
dB(A) = decibels, A-weighted
MassDEP = Massachusetts Department of Environmental Protection
SERO = MassDEP Southeast Regional Office, 20 Riverside Drive, Lakeville, MA 02347
BAW = MassDEP SERO Bureau of Air and Waste

B. The Permittee shall install and use an exhaust stack, as required in Table 7, on each of the Emission Units that is consistent with good air pollution control engineering practice and that discharges so as to not cause or contribute to a condition of air pollution. Each exhaust stack shall be configured to discharge the gases vertically and shall not be equipped with any part or device that restricts the vertical exhaust flow of the emitted gases, including but not limited to rain protection devices known as "shanty caps" and "egg beaters." The Permittee shall install and utilize exhaust stacks with the following parameters, as contained in Table 7 below, for the Emission Units that are regulated by this Plan Approval:

Table 7

EU#	Stack Height Above Ground (feet)	Stack Inside Exit Dimensions (feet)	Stack Gas Exit Velocity Range (feet per second)	Stack Gas Exit Temperature Range (°F)
1	40	1.17	10 - 72	330 - 360
2	26.5	4.04	8 - 26	1400[(a)] – 1800

Table 7 Key:
EU# = emission unit number
°F = degree Fahrenheit

Table 7 Footnote:
[(a)] EU2: 1,400 °F minimum combustion temperature to be maintained under all operating conditions, **except** during flare start-up (not to exceed 15 minutes) and low flare biogas flow (70 SCFM or less)

5. GENERAL CONDITIONS

The Permittee is subject to, and shall comply with, the following general conditions:

A. Pursuant to 310 CMR 7.01, 7.02, 7.09 and 7.10, should any nuisance condition(s), including but not limited to smoke, dust, odor or noise, occur as the result of the operation of the Facility, then the Permittee shall immediately take appropriate steps including shutdown, if necessary, to abate said nuisance condition(s).

B. If asbestos remediation/removal will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that all

removal/remediation of asbestos shall be done in accordance with 310 CMR 7.15 in its entirety and 310 CMR 4.00.

C. If construction or demolition of an industrial, commercial or institutional building will occur as a result of the approved construction, reconstruction, or alteration of this Facility, the Permittee shall ensure that said construction or demolition shall be done in accordance with 310 CMR 7.09(2) and 310 CMR 4.00.

D. Pursuant to 310 CMR 7.01(2)(b) and 7.02(7)(b), the Permittee shall allow MassDEP and / or USEPA personnel access to the Facility, buildings, and all pertinent records for the purpose of making inspections and surveys, collecting samples, obtaining data, and reviewing records.

E. This Plan Approval does not negate the responsibility of the Permittee to comply with any other applicable Federal, State, or local regulations now or in the future.

F. Should there be any differences between the Application and this Plan Approval, the Plan Approval shall govern.

G. Pursuant to 310 CMR 7.02(3)(k), MassDEP may revoke this Plan Approval if the construction work is not commenced within two years from the date of issuance of this Plan Approval, or if the construction work is suspended for one year or more.

H. This Plan Approval may be suspended, modified, or revoked by MassDEP if MassDEP determines that any condition or part of this Plan Approval is being violated.

I. This Plan Approval may be modified or amended when in the opinion of MassDEP such is necessary or appropriate to clarify the Plan Approval conditions or after consideration of a written request by the Permittee to amend the Plan Approval conditions.

J. The Permittee shall conduct emission testing, if requested by MassDEP, in accordance with USEPA Reference Test Methods and regulation 310 CMR 7.13. If required, a pretest protocol report shall be submitted to MassDEP at least 30 days prior to emission testing and the final test results report shall be submitted within 45 days after emission testing.

K. Pursuant to 310 CMR 7.01(3) and 7.02(3)(f), the Permittee shall comply with all conditions contained in this Plan Approval. Should there be any differences between provisions contained in the General Conditions and provisions contained elsewhere in the Plan Approval, the latter shall govern.

6. MASSACHUSETTS ENVIRONMENTAL POLICY ACT

MassDEP has determined that the filing of an Environmental Notification Form (ENF) with the Secretary of Energy & Environmental Affairs, for air quality control purposes, was not required prior to this action by MassDEP. Notwithstanding this determination, the Massachusetts Environmental Policy Act (MEPA) and 301 CMR 11.00, Section 11.04, provide certain "Fail-Safe Provisions," which allow the Secretary to require the filing of an ENF and/or an Environmental Impact Report (EIR) at a later time.

7. APPEAL PROCESS

This Plan Approval is an action of MassDEP. If you are aggrieved by this action, you may request an adjudicatory hearing. A request for a hearing must be made in writing and postmarked within twenty-one (21) days of the date of issuance of this Plan Approval.

Under 310 CMR 1.01(6)(b), the request must state clearly and concisely the facts, which are the grounds for the request, and the relief sought. Additionally, the request must state why the Plan Approval is not consistent with applicable laws and regulations.

The hearing request along with a valid check payable to the Commonwealth of Massachusetts in the amount of one hundred dollars ($100.00) must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

This request will be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below. The filing fee is not required if the appellant is a city or town (or municipal agency), county, or district of the Commonwealth of Massachusetts, or a municipal housing authority.

MassDEP may waive the adjudicatory hearing-filing fee for a person who shows that paying the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request as provided above, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Enclosed is a stamped approved copy of the application submittal.

Should you have any questions concerning this Plan Approval, please contact Mark Poudrier by telephone at 508-946-2783, or in writing at the letterhead address.

Thomas Cushing
Permit Chief
Bureau of Air and Waste

Enclosure

cc: Freetown Board of Health
Freetown Fire Department

Al Beers, FEED Resource Recovery
Chris Marlette, FEED Resource Recovery

MassDEP/Boston
Attn: Y. Tian

MassDEP/SERO
Attn: M. Pinaud
M. Dakers
L. Black